8

M^os 969-70

Y3 Type

PROFILE & DECKS

Y4 Type NN. APJ USHA

971-2. - 3/10/41
973-6 - 24/10/41
977-8 - 14/11/41.
979 - 8/1/42
980/1 - 14/1/42
82/90

EX
N/N FAIRWATER

N.N. FRINTON

Yard No.	Name	First Entry Rpt. No.
969	"EMPIRE AUSTEN"	21837
970	"EMPIRE GALAHAD"	21915
971	"EMPIRE LANCER"	22086
972	"EMPIRE PENNANT"	22115
973	"COULGORM"	22116
976	"CAPE HOWE"	22190
977	"EMPIRE TREASURE".	22243
978	"EMPIRE BEATRICE"	22284
979	"EMPIRE BUCKLER"	21969
980	"EMPIRE PIBROCH"	22047
981	"EMPIRE FALSTAFF"	22342
982	"EMPIRE SERVICE"	22374.
990	"EMPIRE FLORIZEL"	22357.

N/N "apj Usha" WS 681
N
[illegible]

002674-002681-0130

S. S. No 969-970
SECRET AND CONFIDENTIAL
EMERGENCY PROGRAMME
STEAM CARGO VESSELS "Y3" TYPE
PROFILE AND DECKS PLAN.

SCALE 1/8" = 1 FOOT.

DIMENSIONS :- 425'-0" B.P. ON L.W.L. × 56'-0" MLD × 27'-9" MLD TO 2ND DECK × 36'-10" MLD TO UPPER DECK.
TO CLASS 100 A.1. WITH FREEBOARD AT LLOYDS SPECIAL SURVEY.

THE SCANTLINGS ARE SUITABLE FOR A DRAUGHT 18" IN EXCESS OF THAT CONTEMPLATED BY THE RULES FOR A COMPLETE SUPERSTRUCTURE VESSEL HAVING A TONNAGE OPENING.

THE SCANTLINGS OF, ANGLE, BULB ANGLE AND CHANNEL SECTIONS GIVEN ON THIS PLAN ARE "N.B.S." AND ARE THE MINIMUM WHICH WILL BE ACCEPTED FOR THE FULL DRAUGHT

SHEER FORWARD = 108"
SHEER 1/8 L FORWARD = 61"
SHEER AFT = 54"
SHEER 1/8 L AFT = 30½"
DISPLACEMENT CO-EFF = ·75
ROUND OF BEAM. = 14"
TUMBLE HOME AT UPPER DECK = 12"
TUMBLE HOME AT 2ND DECK = 2½"

Framing to Surveyor's satisfaction

TWEEN DECK CR LINE BHD STIFFENERS.
5" × 3" × ·34" O.A. SINGLE. 6" × 3" × 3/8" UNDER FC.LE.
6" × 3½" × ·34" O.A. DOUBLE ON HATCH ENDS.
ACCOMN
FORECASTLE
STIFFENERS
SPACED 30"
UPPER DECK
COAMING 30" AT SIDES 36" AT CR
GIRDER 15" × ·44" FLD 10"
6" × 3½" × ·38" B.A. TWEEN DECK.
9" B.A. COAMING.
GIRDER 18" × ·50" FLD 17"
RIDER PLATE 14" × 1·08"
STORE
COMPOSITION
No 2 HOLD
No 1 HOLD
No 3 HOLD
ENGINE SPACE
BOILER SPACE
POCKET BUNKER
CROSS BUNKER
TUNNEL RECESS
SHAFT TUNNEL
THRUST RECESS
WATER BALLAST TANK
PEAK FLOORS ·42" IN LAP ON FRAME
FORE PEAK W.T. FLAT.
UPPER DECK
SECOND DECK
FORECASTLE DECK
AFT PEAK TOP STRINGER
AFT PEAK BOTTOM STRINGER
FORE PEAK TOP STRINGER
FORE PEAK BOTTOM STRINGER
HOLD DECK UNDER WINDLASS
PART OF SECOND DECK
CARGO HATCH
COAL HATCH
ENGINE CASING
BOILER CASING
STOKE HOLD
CHAIN LOCKER

APPROVED
LLOYD'S REGISTER OF SHIPPING
James R Clark
DATE 10/5/41

© 2020
LR Lloyd's Register Foundation

⑭

LITHGOWS L^TD
Nº 969-70
'Y'3 TYPE.
MIDSHIP SECTION
Y4 TYPE

971/2 - 3/10/41.
973/6 - 24/10/41
977/8 - 14/11/41
979 - 8/1/42.
980-81 - 14/1/42.

NN. APJ USHA
EX FAIRWATER X
EX FREECREST
N.N. "FRINTON" EX N/N FAIRWATER

Yard No.	Name	First Entry Rpt. No.
969	"EMPIRE AUSTEN"	21837
970	"EMPIRE GALAHAD"	21915
971	"EMPIRE LANCER"	22036
972	"EMPIRE PENNANT"	22115
973	"COULGORM"	22116
976	"CAPE HOWE"	22190
977	"EMPIRE TREASURE"	22242
978	"EMPIRE BEATRICE" (MARY K)	22204
979	"EMPIRE BUCKLER"	21189
980	"EMPIRE PIBROCH"	22047
981	"EMPIRE FALSTAFF"	22342
982	"EMPIRE SERVICE"	22374
990	"EMPIRE FLORIZEL" WS 926	22357

W/S
681

002674-002681-0131

© 2020
Lloyd's Register Foundation

S. S. Nos 969-70.

SECRET & CONFIDENTIAL
EMERGENCY PROGRAMME
STEAM CARGO VESSEL "Y. 3" TYPE.

MIDSHIP SECTION.

SCALE ½" = 1·0"

TO CLASS 100 A.I. WITH FREEBOARD AT LLOYDS SPECIAL SURVEY.

DIMENSIONS :- 425'·0" B.P. ON L.W.L x 56'·0" Mld x 56'·3" EXT x 27'·9" Mld TO 2nd DK - 36'·10" Mld TO UPPER Dk.

THE SCANTLINGS ARE SUITABLE FOR A DRAUGHT 18" IN EXCESS OF THAT CONTEMPLATED BY THE RULES FOR A COMPLETE SUPERSTRUCTURE VESSEL HAVING A TONNAGE OPENING.

LLOYDS NUMERALS

FIRST LONGITUDINAL NUMBER L x D = 425·0 x 35·75	=	15193·75
SECOND LONGITUDINAL NUMBER L x (B x D) = 425·0 x (56·0 + 35·75)	=	38993·75
L/D TO UPPER DECK = 425'·0" ÷ 36·75	=	11·55
D MOULDED DEPTH = 27·75 + 8·0"	=	35·75
d = 27·75 - (3'·7¼" + 3" FOR HIGHER BKT + 6" FOR DEEP KNEE	=	23·40
d AT HALF LENGTH FORWARD	=	26·39

EQUIPMENT NUMBER

SECOND LONGITUDINAL NUMBER = 425·0 x (56·0 + 36·83)	=	39452·75
MIDSHIP ACCOMMODATION & CASING = 72·25 x 8·0 x ½	=	289·00
SALOON ACCOMMODATION = 30·0 x 8·0 x ½	=	120·00
FORECASTLE = 40·0 x 7·5 x ¾	=	225·00
EQUIPMENT NUMBER	=	40086·75

EQUIPMENT

2 BOWER ANCHORS 68 CWTS EACH STOCKLESS.
1 STREAM ANCHOR 19 CWTS EX - STOCK
RULE 270 FATHOMS 225 FATHOMS 2 5/16" STUD CHAIN CABLE 600 CWTS
90 FATHOMS 1 5/16" STREAM CHAIN OR 5" FLEXIBLE STEEL WIRE 6" x 12".
120 FATHOMS 4¾" SPECIAL FLEXIBLE STEEL WIRE 6" x 24"
2 HAWSERS 90 FATHOMS 8" HEMP OR 2¾ FLEXIBLE STEEL WIRE 6" x 12"
2 WARPS 90 FATHOMS 7" HEMP OR 2½" FLEXIBLE STEEL WIRE 6" x 12"

IN THE EVENT OF SCARCITY OF LABOUR ELECTRIC WELDING WOULD BE ADOPTED WHERE EVER PRACTICABLE

See letter

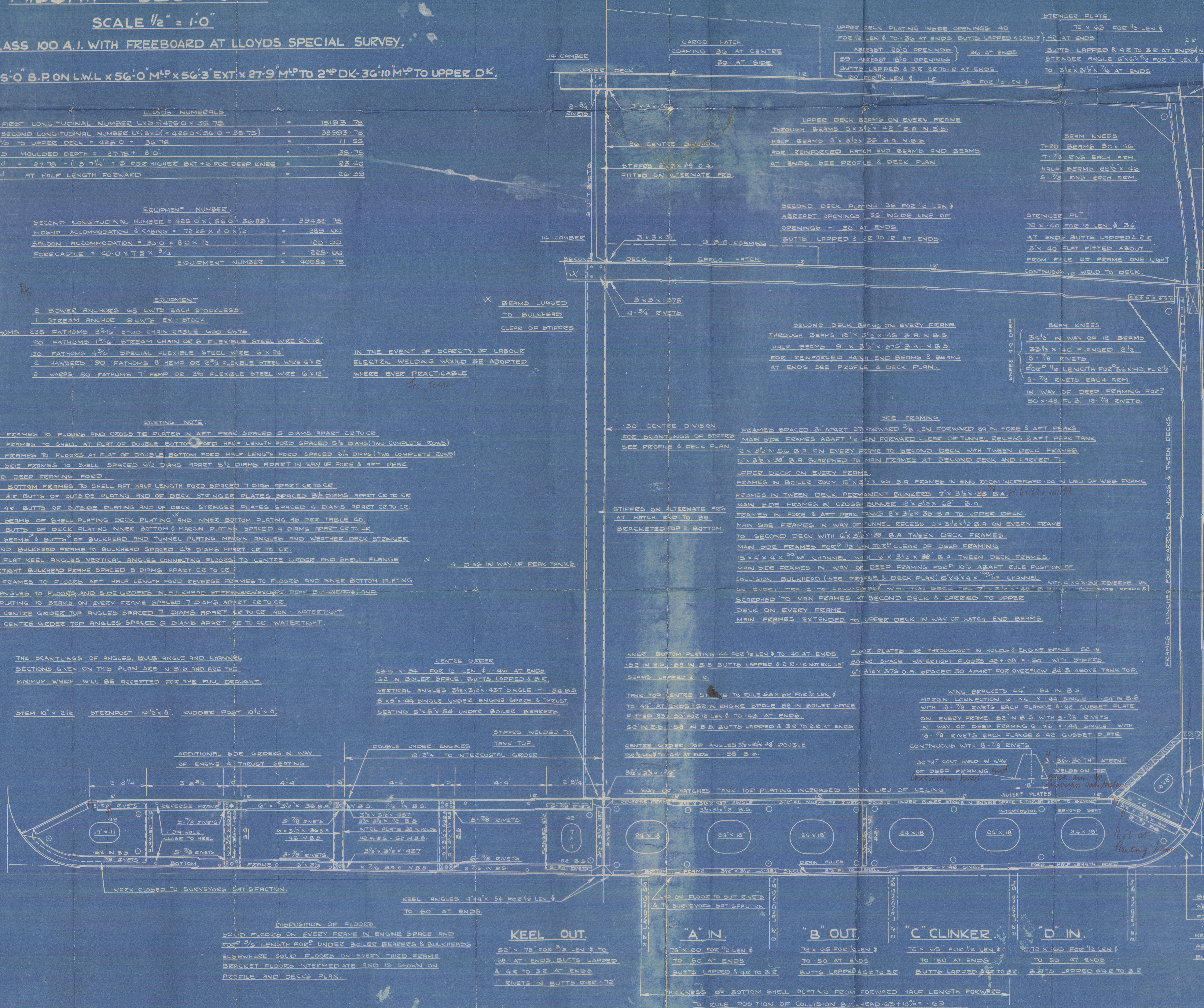
RIVETING NOTE.

RIVETS IN FRAMES TO FLOORS AND CROSS TIE PLATES IN AFT PEAK SPACED 5 DIAMS APART CR TO CR.
RIVETS IN FRAMES TO SHELL AT FLAT OF DOUBLE BOTTOM FORD HALF LENGTH FORD SPACED 5½ DIAMS (TWO COMPLETE ROWS)
RIVETS IN FRAMES TO FLOORS AT FLAT OF DOUBLE BOTTOM FORD HALF LENGTH FORD SPACED 6¼ DIAMS (TWO COMPLETE ROWS)
RIVETS IN SIDE FRAMES TO SHELL SPACED 6½ DIAMS APART 5½ DIAMS APART IN WAY OF FORE & AFT PEAK TANKS AND DEEP FRAMING FORD.
RIVETS IN BOTTOM FRAMES TO SHELL AFT HALF LENGTH FORD SPACED 7 DIAS APART CR TO CR.
RIVETS IN 3.R BUTTS OF OUTSIDE PLATING AND OF DECK STRINGER PLATES SPACED 3½ DIAMS APART CR TO CR.
RIVETS IN 4R BUTTS OF OUTSIDE PLATING AND OF DECK STRINGER PLATES SPACED 4 DIAMS APART CR TO CR.
RIVETS IN SEAMS OF SHELL PLATING DECK PLATING x AND INNER BOTTOM PLATING AS PER TABLE 40.
RIVETS IN BUTTS OF DECK PLATING INNER BOTTOM & MARGIN PLATING SPACED 4 DIAMS APART CR TO CR.
RIVETS IN SEAMS x & BUTTS x OF BULKHEAD AND TUNNEL PLATING MARGIN ANGLES AND WEATHER DECK STRINGER ANGLES AND BULKHEAD FRAME TO BULKHEAD SPACED 4½ DIAMS APART CR TO CR.
RIVETS IN FLAT KEEL ANGLES VERTICAL ANGLES CONNECTING FLOORS TO CENTRE GIRDER AND SHELL FLANGE OF WATERTIGHT BULKHEAD FRAME SPACED 5 DIAMS APART CR TO CR.
RIVETS IN FRAMES TO FLOORS AFT HALF LENGTH FORD REVERSE FRAMES TO FLOORS AND INNER BOTTOM PLATING VERTICAL ANGLES TO FLOORS AND SIDE GIRDERS IN BULKHEAD STIFFENERS (EXCEPT PEAK BULKHEADS) AND IN DECK PLATING TO BEAMS ON EVERY FRAME SPACED 7 DIAMS APART CR TO CR.
RIVETS IN CENTRE GIRDER TOP ANGLES SPACED 7 DIAMS APART CR TO CR NON - WATERTIGHT.
RIVETS IN CENTRE GIRDER TOP ANGLES SPACED 5 DIAMS APART CR TO CR WATERTIGHT.

x 4 DIAS IN WAY OF PEAK TANKS.

THE SCANTLINGS OF ANGLES, BULB ANGLE AND CHANNEL SECTIONS GIVEN ON THIS PLAN ARE N.B.S. AND ARE THE MINIMUM WHICH WILL BE ACCEPTED FOR THE FULL DRAUGHT.

STEM 10" x 2½. STERNPOST 10½" x 8". RUDDER POST 10½" x 8".



14 CAMBER
UPPER DECK
1.R.
CARGO HATCH
COAMING 36" AT CENTRE
30" AT SIDE
2 - ¾" RIVETS
3" x 3" x ·36"
26" CENTRE DIVISION
STIFFRS 5" x 3" x 34" O.A. FITTED ON ALTERNATE FRS.
9'·0" T.B. TO T.B.
14 CAMBER
3" x 3" x ·36".
9" B.A. COAMING
SECOND DECK
CARGO HATCH
3" x 3" x ·375.
4 - ¾" RIVETS.
x BEAMS LUGGED TO BULKHEAD CLEAR OF STIFFRS.
30" CENTRE DIVISION FOR SCANTLINGS OF STIFFRS SEE PROFILE & DECK PLAN.
STIFFRS ON ALTERNATE FRS AT HATCH END TO BE BRACKETED TOP & BOTTOM.
2.R
12" TUMBLE HOME AT UPPER DECK.
2.R. LANDING 5¼"
15" SCARPH.
40"
KNEES 4·0" DEEP
FRAMES PUNCHED FOR SPARRING IN HOLDS & TWEEN DECKS.
13 - 7/8" RIVETS - 19 - 7/8" RIVETS IN WAY OF DEEP FRAMING
6·5"
6"
12" x 8"
6" x 6" x ·44"
3½" x 3½" x ·44
9 - 7/8" RIVS
ADDITIONAL SIDE GIRDERS IN WAY OF ENGINE & THRUST SEATING.
DOUBLE UNDER ENGINES
12' 2¼" TO INTERCOSTAL GIRDER
STIFFRS WELDED TO TANK TOP.
2' 8¼"
3' 5¾"
10"
4' 4"
6"
4' 4"
10"
4' 4"
2' 8¼"
5 - 7/8" RIVETS
REVERSE FRAME
6" x 3½" x ·36 B.A.
N.B.S. 7/16" IN B.S.
42"
17" x 11"
FLANGED 2½"
5 - 7/8" RIVETS
1" DIA HOLE CLOSE TO HEEL
10" x 3½" x ·40 B.A.
10" x 3½" x ½ B.S.
B.S.
3 - 7/8" RIVETS
6" x 3½" x ·36 B.A.
·46" IN B.S.
3½" x 3½" x ·437"
3½" x 3½" x ½" B.S.
INTCL PLATE ·38 IN HOLDS
·42 IN E.S. - ·52 IN B.S.
3½" x 3½" x ·437
5 - 7/8" RIVETS
·52 IN B.S.
7/8" RIVETS
BOTTOM FRAME
6" x 3½" x 7/16 B.A. O N.B.S.
7/16" IN B.S.
·52 B.S.
42"
17" x 11"
3½" x 3½" x ·437 SINGLE
WORK CLOSED TO SURVEYORS SATISFACTION.
KEEL ANGLES 4" x 4" x ·54 FOR ½ LEN ∅ TO ·50" AT ENDS.
3½" x 3½" x ·3/8"
REVERSE FRAME 3½" x 3½" x ·437 SINGLE
3½" FL WHERE 7/8 RIVETS DOUBLE UNDER BOILER STOOLS IN ENGINE SPACE & THRUST SEAT TO BEYOND
3½" x 3½" x ½" B.S.
INTERCOSTAL
BEYOND SEAT
3½" x 3½" x ·3/8
3½" x 3½" x ·437
24" x 18"
24" x 18"
24" x 18"
24" x 18"
24" x 18"
24" x 18"
DRAIN HOLES.
BOTTOM FRAME 3½" x 3½" - x ·437" SINGLE
3½" FL TO SHELL
5" x 5" - x ·46 SINGLE
FORD - HALF LENGTH FORD
GUSSET PLATES
18"
2.R. LANDING 5¼
LAP ON FLOOR TO SUIT RIVETS & TO SURVEYORS SATISFACTION

UPPER DECK PLATING INSIDE OPENINGS ·40" FOR ½ LEN ∅ TO ·36" AT ENDS. BUTTS LAPPED & 2R TO 1R } ·42" AT ENDS

ABREAST 20'·0" OPENINGS
·59" ABREAST 18'·0" OPENINGS } ·36" AT ENDS

BUTTS LAPPED & 3.R. 2R TO 1.R AT ENDS.

·60" FOR ½ LEN ∅ 1.R. ·65" FOR ½ LEN ∅

STRINGER PLATE

72" x ·65" FOR ½ LEN ∅
·42" AT ENDS
BUTTS LAPPED & 4R TO 3R AT ENDS (NOT EXC ·42"
STRINGER ANGLE 6" x 6" x 5/8" FOR ½ LEN ∅
TO 3½" x 3½" x 7/16 AT ENDS.

FORECASTLE.

STRINGER PLATE ·36" BUTTS 1 R.
STRINGER ANGLE 3½ x 3½" x ·36"
DECK PLATING ·32" UNSHEATHED
BUTTS LAPPED & 1·R.
SIDE PLATING ·40" SEAMS & BUTTS 1·R.
BEAMS ON EVERY FRAME AS PER PROFILE AND DECK PLAN.

UPPER DECK BEAMS ON EVERY FRAME

THROUGH BEAMS 10" x 3½" x ·42" B.A. N.B.S.
HALF BEAMS 8" x 3½" x ·35" B.A. N.B.S.
FOR REINFORCED HATCH END BEAMS AND BEAMS AT ENDS. SEE PROFILE & DECK PLAN.

BEAM KNEES

THRO BEAMS 30" x ·46"
7 - 7/8" RIVS EACH ARM
HALF BEAMS 22½" x ·46"
5 - 7/8" RIVS EACH ARM.

SECOND DECK PLATING ·35" FOR ½ LEN ∅
ABREAST OPENINGS ·35" INSIDE LINE OF OPENINGS - ·30" AT ENDS
BUTTS LAPPED & 2R TO 1R AT ENDS

STRINGER PLT

72" x ·40" FOR ½ LEN ∅ ·34"
AT ENDS BUTTS LAPPED & 2.R
3" x ·40" FLAT FITTED ABOUT 1" FROM FACE OF FRAME ONE LIGHT CONTINUOUS WELD TO DECK.

STRINGER PLATE TACK WELDED TO SHELL 3 - 3½" WELDS IN EACH 31" FRAME SPACE.

SECOND DECK BEAMS ON EVERY FRAME

THROUGH BEAMS 12" x 3½" x ·45 B.A. N.B.S.
HALF BEAMS 9" x 3½" x ·375 B.A. N.B.S.
FOR REINFORCED HATCH END BEAMS & BEAMS AT ENDS. SEE PROFILE & DECK PLAN.

BEAM KNEES

34½" IN WAY OF 12" BEAMS
33½" x ·40" FLANGED 2½"
8 - 7/8" RIVETS
FORD ½ LENGTH FORD 36" x ·42, FL 2½"
8 - 7/8" RIVETS EACH ARM.
IN WAY OF DEEP FRAMING FORD
50" x ·48, FL 3". 12 - 7/8" RIVETS.

SIDE FRAMING.

FRAMES SPACED 31" APART 27" FORWARD 3/5 LEN FORWARD 24" IN FORE & AFT PEAKS.
MAIN SIDE FRAMES ABAFT ½ LEN FORWARD CLEAR OF TUNNEL RECESS & AFT PEAK TANK 12" x 3½" x ·56 B.A. ON EVERY FRAME TO SECOND DECK WITH TWEEN DECK FRAMES 6" x 3½" x ·38" B.A. SCARPHED TO MAIN FRAMES AT SECOND DECK AND CARRIED TO UPPER DECK ON EVERY FRAME.
FRAMES IN BOILER ROOM 12" x 3½" x ·66" B.A. FRAMES IN ENG ROOM INCREASED ·04" IN LIEU OF WEB FRAME
FRAMES IN TWEEN DECK PERMANENT BUNKERS 7" x 3½" x ~~·33~~ ·38 B.A. or 6 x 3½ x ·44 BA
MAIN SIDE FRAMES IN CROSS BUNKER 12" x 3½" x ·62" B.A.
FRAMES IN FORE & AFT PEAK TANKS 8" x 3½" x ·35" B.A. TO UPPER DECK.
MAIN SIDE FRAMES IN WAY OF TUNNEL RECESS 10" x 3½" x ½" B.A. ON EVERY FRAME TO SECOND DECK WITH 6" x 3½" x ·38" B.A. TWEEN DECK FRAMES.
MAIN SIDE FRAMES FORD ½ LEN FORD CLEAR OF DEEP FRAMING 15" x 4" x 4" x ·50/·62" CHANNEL WITH 6" x 3½" x ·38" B.A. TWEEN DECK FRAMES.
MAIN SIDE FRAMES IN WAY OF DEEP FRAMING FORD 10% ABAFT RULE POSITION OF COLLISION BULKHEAD (SEE PROFILE & DECK PLAN) 15" x 4" x 4" x ·60/·62" CHANNEL WITH 4" x 4" x ·50 REVERSE ON ALTERNATE FRAMES ~~ON EVERY FRAME TO SECOND DECK WITH TWN DECK FRS 7" x 3½" x ·40" B.A.~~ SCARPHED TO MAIN FRAMES AT SECOND DECK & CARRIED TO UPPER DECK ON EVERY FRAME.
MAIN FRAMES EXTENDED TO UPPER DECK IN WAY OF HATCH END BEAMS.

INNER BOTTOM PLATING ·44" FOR ½ LEN ∅ TO ·40" AT ENDS ·52" IN E.S. ·58 IN B.S. BUTTS LAPPED & 2.R - 1.R NOT EXC ·42" SEAMS LAPPED & 1.R.

FLOOR PLATES ·42" THROUGHOUT IN HOLDS & ENGINE SPACE ·52" IN BOILER SPACE WATERTIGHT FLOORS ·42" + ·08 = ·50" WITH STIFFRS 6" x 3½" x ·375" O.A. SPACED 30" APART FOR OVERFLOW 34'·3" ABOVE TANK TOP.

TANK TOP CENTRE STRAKE TO RULE 53" x ·52" FOR ½ LEN ∅ TO ·44" AT ENDS ·52" IN ENGINE SPACE ·58" IN BOILER SPACE FITTED ·83" x ·50 FOR ½ LEN ∅ TO ·43" AT ENDS.
·52" IN E.S. ·58" IN B.S. BUTTS LAPPED & 3R TO 2.R AT ENDS

CENTRE GIRDER TOP ANGLES 3½ x 3½ x ·48" DOUBLE FOR ½ LEN ∅ TO ·44 AT ENDS - ·58" B.S.

CENTRE GIRDER

43¼" x ·54" FOR ½ LEN ∅ ·46" AT ENDS ·62" IN BOILER SPACE. BUTTS LAPPED & 3.R
VERTICAL ANGLES 3½" x 3½" x ·437" SINGLE - ·54 B.S.
5" x 5" x ·44 SINGLE UNDER ENGINE SPACE & THRUST SEATING 5" x 5" x ·54" UNDER BOILER BEARERS.

WING BRACKETS ·44" ·54" IN B.S.
MARGIN CONNECTION 6" x 6" x ·44 SINGLE ·54" IN B.S. WITH 18 - 7/8" RIVETS EACH FLANGE & ·42" GUSSET PLATE ON EVERY FRAME. ·52" IN B.S. WITH 5 - 7/8" RIVETS IN WAY OF DEEP FRAMING 6" x 6" x ·44 SINGLE WITH 18 - 7/8" RIVETS EACH FLANGE & ·42" GUSSET PLATE CONTINUOUS WITH 8 - 7/8" RIVETS

·30" TH^T CONT WELD IN WAY OF DEEP FRAMING and Continuous Gusset

4 3 - 3½" x ·30" TH^T INTERN^T WELDS ON TOP

Back arm to Surveyors satisfaction

6x6 at Pointing frames

IN WAY OF HATCHES TANK TOP PLATING INCREASED ·08" IN LIEU OF CEILING.

DISPOSITION OF FLOORS

SOLID FLOORS ON EVERY FRAME IN ENGINE SPACE AND FORD 3/5 LENGTH FORD UNDER BOILER BEARERS & BULKHEADS ELSEWHERE SOLID FLOORS ON EVERY THIRD FRAME BRACKET FLOORS INTERMEDIATE AND IS SHOWN ON PROFILE AND DECKS PLAN.

BILGE KEEL 12" x ·50" BULB PLATE WELDED TO SHELL FOR ABOUT 110'·0" AMIDSHIPS.

MARGIN SHELL ANGLE 4" x 4" x ·50" FORE & AFT.

MARGIN PLATE TO RULE 39" FITTED ABOUT 44 x ·54" - ·60 IN B.S. BUTTS LAPPED & 3.R THROUGHOUT.

THICKNESS OF BOTTOM SHELL PLATING FROM FORWARD HALF LENGTH FORWARD TO RULE POSITION OF COLLISION BULKHEAD ·63 + 10% = ·69"

KEEL OUT.

52" x ·78" FOR 3/5 LEN ∅ TO ·68" AT ENDS. BUTTS LAPPED & 4R TO 3R AT ENDS
1" RIVETS IN BUTTS OVER ·72"

"A" IN.

78" x ·60 FOR ½ LEN ∅
TO ·50 AT ENDS
BUTTS LAPPED & 4R TO 3.R.

"B" OUT.

72" x ·65 FOR ½ LEN ∅
TO ·50 AT ENDS
BUTTS LAPPED & 4R TO 3R.

"C" CLINKER.

72" x ·65 FOR ½ LEN ∅
TO ·50 AT ENDS
BUTTS LAPPED & 4R TO 3R.

"D" IN.

72" x ·60 FOR ½ LEN ∅
TO ·50" AT ENDS
BUTTS LAPPED & 4R TO 3.R

"E" OUT.

81½" x ·63" FOR ½ LEN ∅
TO ·50 AT ENDS
BUTTS LAPPED & 4R TO 3R.

"F" CLINKER.

76½ x ·65" FOR ½ LEN ∅
TO ·46" AT ENDS
BUTTS LAPPED & 3.R.

"G" IN.

76½" x ·60" FOR ½ LEN ∅
TO ·46" AT ENDS
BUTTS LAPPED & 3.R

"H" OUT.

76" x ·65" FOR ½ LEN ∅
TO ·46" AT ENDS
BUTTS LAPPED & 3.R.

"J" IN.

76" x ·65" FOR ½ LEN ∅
TO ·46" AT ENDS
BUTTS LAPPED & 3 R.

"K" OUT.

58" x ·65" FOR ½ LEN ∅
TO ·46" AT ENDS. BUTTS LAPPED & 4R FOR ½ LEN ∅ TO 3R AT ENDS.

"L" IN.

58" x ·69" FOR ½ LEN ∅
TO ·46" AT ENDS. BUTTS LAPPED & 4R FOR ½ LEN ∅ TO 3R AT ENDS

APPROVED
LLOYD'S REGISTER OF SHIPPING
James R Clark
DATE 10/5/41

ALSO 969·70·1·2·7 8·9·80·1·2·90

Y1 + Y2 TYPE ⑧

LITHGOWS LTD NOS.
957/8/9/60/1/2/3/4/5.

D.S. 284

RUDDER

n/n "ACHEO"

Yard No.	Name	First Entry Rpt. No.
957	"EMPIRE RIDLEY"	21638
958	"EMPIRE BAFFIN"	21587
959	"EMPIRE HOWARD"	21645
960	"EMPIRE RANGER"	21746
961	"EMPIRE ZEAL"	21769
962	"EMPIRE SPARTAN"	21797
963	"EMPIRE CONRAD"	21846
964	"EMPIRE PRAIRIE"	21702
965	"EMPIRE ADDISON"	21770

ard No.	Name.	First Entry Rpt. No.
969	"EMPIRE AUSTEN"	21837
970	"EMPIRE GALAHAD"	21915
971	"EMPIRE LANCER"	22086
972	"EMPIRE PENNANT"	22115
~~973~~	~~"COULGORM"~~	~~22116~~
~~976~~	~~"CAPE HOWE"~~	~~22190~~
×977	"EMPIRE TREASURE"	22243
978	"EMPIRE BEATRICE"	22284
979	"EMPIRE BUCKLER"	21969
980	"EMPIRE PIBROCH"	22047
981	"EMPIRE FALSTAFF"	22342
982	"EMPIRE SERVICE"	22374
990	"EMPIRE FLORIZEL"	22357.

Y1 & Y2 TYPES.

STREAMLINE RUDDER.

S.S. Nos 957-8-9-60-1-2-3-4 & 5.

SCALE 1" = 1 foot
DETAILS AS INDICATED

No 962 SIMILAR BUT FITTED WITH HORIZONTAL COUPLING
SEE "Y" TYPE PLAN FOR DETAILS

RUDDER STOCK BEST QUALITY FORGING.
RUDDER FRAME - BEST QUALITY STEEL CASTING.

VIEW LOOKING AFT
3⅞" DIA. BOLTS
NOTE: BODY OF BOLT TO BE LEFT 1/16" FULL TO SAVE THREAD OF BOLT WHEN SHIPPING.
5¾" ACROSS FLATS
3⅛" COTTER PIN TO BEAR HARD AGAINST NUT
DETAIL OF BOLTS.
SCREWED 3⅞" ⁰/D 6 THREADS PER INCH
SECTION THRO' "AA"
SECTION THRO' "BB"
12" DIA. STOCK
RUDDER GUDGEON 5⅞" R.
STERNFRAME FIN
SHELL PLATES
CAST STEEL ARM
SECTION THRO TOP RUDDER ARM
SECTION THRO INTERMEDIATE RUDDER ARM
SPACE FILLED WITH CORK AND BITUMINOUS SOLUTION
SECTION THRO RUDDER IN WAY OF WRAPPED PLATES
SECTION THRO BOTTOM RUDDER ARM
2¼ RADIUS TOP CORNER
EDGE OF SHELL PLATING
TOP CORNER 2¼ RADIUS
3" DIA FILLING HOLE TOP PLATE ONLY
WRAPPER PLATES LAPPED 2" AND WELDED TO POST COMPLETE
4½" DIA LIFTING EYE (SEE DETAIL)
RUDDER SHELL PLATES .46
RUDDER WRAPPER PLATES .40
FORWARD EDGE OF RUDDER POST TO BE SQUARE OFF BASE LINE OF SHIP AND PARALLEL TO Cᴸ LINE OF PINTLES
3" DIA FILLING HOLE TOP PLATE ONLY.
OVERALL LENGTH OF RUDDER FRAME
ELEVATION OF RUDDER WITH STARᴰ PLATE OFF
BASE LINE OF SHIP
DETAIL OF KEYWAYS
KEYWAY IN QUADRANT & TILLER
KEYWAY IN RUDDER CARRIER
13/16" TAPERING TO 11/16"
VIEW LOOKING FORD. ON RUDDER STOCK.
QUADRANT (LOOSE)
TILLER (KEYED)
RUDDER STOCK 12" DIAᴿ
PILLAR AT CENTRE
W.T. RUDDER TRUNK
ELEVATION OF RUDDER STOCK.
PIN TO BEAR HARD AGAINST NUT WHEN PINTLE IS HARD IN POSITION
½" DIAᴿ COTTER PIN BY RUDDER MAKER
NUT 6⅞" ACROSS CORNERS
4" DIAᴿ
BRASS BUSH ON PINTLE BY RUDDER MAKERS
DETAIL OF ALL RUDDER GUDGEONS & PINTLES (EXCEPT BOTTOM GUDGEON) SCALE ¼ FULL SIZE
DETAIL OF BOTTOM GUDGEON & BEARING PINTLE SCALE ¼ FULL SIZE
DETAILS NOT INDICATED SIMILAR TO SKETCH ABOVE

DIMENSIONS:- 425'-0" B.P. × 56'-0" MLD. × 27'-9" MLD TO SECOND DECK:- 36'-9" MLD TO UPPER DECK.
TO CLASS 100 A.1. WITH FREEBOARD AT LLOYDS SPECIAL SURVEY.
LOAD DRAFT 26'-4" ACTUAL SHIP SPEED 10½ KNOTS - (LLOYDS MIN. SPEED FOR RUDDER - 12 KNOTS)
TOTAL IMMERSED AREA OF RUDDER FROM FORE SIDE OF POST 131 SQ. FT.
CENTRE OF GRAVITY OF AREA FROM CENTRE LINE OF PINTLES - 4·349 FEET.
A × D = 570 DIAMᴱ OF RUDDER STOCK - 12" DIA.
KEYWAYS ETC. TO BE CUT IN RUDDER STOCK TO PARTICULARS GIVEN.
RUDDER STOCK TO BE ACCURATELY TURNED TO DIMENSIONS GIVEN.
RUDDER FRAME TO BE ACCURATELY CAST TO SHAPE AS PER DETAILS.
RIVET HOLES TO BE BORED PLUMB THRO' FRAME, SIZE MUST NOT BE LESS THAN GIVEN.
RUDDER NOT TO EXCEED GIVEN SCANTLINGS EXCESS OVER EST. WEIGHT WILL NOT BE PAID
PATTERN OF RUDDER FRAME TO BE APPROVED BY SHIPBUILDERS' DESIGNER BEFORE CASTING.

NOTE:- ALL PINTLES TO BE SUPPLIED COMPLETE BY RUDDERS. MAKERS. PINTLES TO BE OF STEEL MADE & EFFICIENTLY FITTED AS PER DETAILS BRASS BUSHES MUST BE TURNED IN ONE PIECE AND PROPERLY SHRUNK ON PINTLES.

NOTE:- KEYWAYS CUT SQUARE ENDED CORNERS NOT TO EXCEED ¼" RAD. DEPTH OF KEYS MEASURED AT SIDES OF KEYWAY.

HEIGHT OF DECK ABOVE BASE LINE OF SHIP - 32'-7⅜"
HEIGHT OF RUDDER STOCK ABOVE DECK - 3'-5¾"
TOTAL LENGTH OF RUDDER ABOVE BASE LINE - 36'-1⅛"
HEIGHT TO BOTTOM OF RUDDER STOCK. - 20'-6½"
TOTAL LENGTH OF RUDDER STOCK - 15'-6⅝"

W.T. CAST IRON STUFFING BOX. LITHGOWS PATTERN No 907 WITH SOLE MODIFIED TO SUIT SHIPPING HOLE (1'-9¼" DIAᴿ) SOLE FITTED STEEL TO STEEL SPIGOT "FITTED" TO TOP PLATE ALL ROUND

RIVET HOLES IN RUDDER TO BE 1 1/16 DIA. FOR 1" DIA RIVETS SPACED 4½ DIA. APART Cᴿ/ TO Cᴿ/. EACH ROW AS SHOWN HOLES IN PLATE COUNTERSUNK OUTSIDE RIVET HEADS & POINTS JUST OVER FLUSH. RIVETS OVER 4½" IN LENGTH TO BE FITTED INTO 1 1/16" DIA HOLES

NOTE:- WHEN FLOATING RUDDER SLIGHT CLEARANCE TO BE LEFT BETWEEN BOTTOM OF BOTTOM PINTLE & BEARING DISC TO ENSURE THAT CARRIER IS BEARING ENTIRE WEIGHT OF RUDDER.

CONSTRUCTION NOTE - RUDDER FRAME TO BE LAID ON TOP OF BOTTOM PLATE. ALL INSIDE SURFACES OF RUDDER TO BE COATED WITH BITUMINOUS SOLUTION. CORK MIXTURE TO BE FILLED IN THE FOUR COMPARTMENTS TO TOP PLATE LEVEL. TOP PLATE LAID IN POSITION ENTIRE RUDDER RIVETTED COMPLETE & SEAMS CAULKED. BITUMINOUS SOLUTION POURED INTO EACH COMPARTMENT UNTIL FULL. CLOSING DISCS WELDED INTO FILLING HOLES & FILLET WELD ROUND LIFTING EYE. WRAPPER PLATES FITTED IN POSITION & WELDED AS INDICATED

APPROVED
LLOYD'S REGISTER OF SHIPPING
James R Clark
DATE 2/12/40